

**BRIEFING  
REGIONAL ADMINISTRATOR, REGION 4  
EPA & NCEH/ATSDR CONCEPT PAPERS  
RADIOLOGICAL CONTAMINATION ASSOCIATED WITH  
FL PHOSPHATE MINING  
May 8, 2006**

\*\*\*\*\*DELIBERATIVE PROCESS\*\*\*\*\*FOIA EXEMPT\*\*\*\*\*DO NOT RELEASE\*\*\*\*\*

☐ **BACKGROUND**

- EPA RA, Region 4, and AA, ATSDR agreed to develop "Concept Papers" to facilitate the understanding of the respective Agency's criteria and responsibilities in assessing radiation risk from TENORM.
- Various criteria used in the assessment and cleanup of radium contaminated soils were evaluated.
- Efforts were made to identify criteria consistent with the following:
  - CERCLA and the NCP, and OSWER Guidance
  - Protective of Public Health as Evaluated by ATSDR
  - Criteria from ORIA; State of Florida; other Federal Agencies; and scientific organizations

☐ **EPA CONCEPT PAPER**

- Summarizes primary federal and state remediation criteria used for the protection of public health due to exposure to elevated levels of Ra<sup>226</sup> in soil in residential areas.
- Analysis based on CERCLA framework for ensuring protectiveness, but does not presume that CERCLA is the appropriate or sole vehicle for ensuring protectiveness.
- CERCLA framework would incorporate a soil criterion of 5pCi/g as an appropriate cleanup criterion.
- Recommends incorporating ALARA concept to balance cost with risk reduction and other socio-economic impacts.
- Developed in consultation with OSWER, ORIA, and ATSDR.
- Considered criteria used by EPA, ATSDR, DOE, DOD, NRC, State Agencies, ICRP, NCRP, CRCPD

☐ **ATSDR CONCEPT PAPER**

- Acknowledges different roles and mandates for EPA and ATSDR (i.e., long-term risk vs. observable health effects).
- Would likely concurs with EPA's use of 5pCi/g as a protective soil criterion, but references other criteria, including State recommendations as possible alternatives.
- Identifies possible thresholds that could trigger a response:
  - 5pCi/g above background
  - CERCLA risk range
  - Florida 500 mRem/yr dose level
  - ATSDR caveats criteria that it should not advise on whether to take an action.
- Implies 5pCi/g may be "overly" protective...offers other options (i.e., FDOH 100/500 mRem/yr tiered approach).





## **DISCUSSION POINTS**

### **Exposure/Remediation Standards**

- ATSDR Notes Natural Background of 360 mRem/yr
  - 360 mRem/yr natural background includes all sources (not just from Ra<sup>226</sup>)
  - Increases in Ra<sup>226</sup> in soil from mining would result in a corresponding increase in the annual dose level.
  - According to NCRP 146, 5 pCi/g is approximately equivalent to a dose of 35 mRem/yr.
  - Based on an average soil Ra<sup>226</sup> soil level 30 pCi/g observed in the mining areas, the average annual dose would increase by 210 mRem/yr, raising the combined dose (natural and TENORM) from 360 to 570 mRem/yr.
  - EPA addresses risks from incremental increases in contaminant levels above background.
- ATSDR Estimates Allow for Higher Soil Radium Levels
  - ATSDR estimates acceptable soil radium levels as much as two order of magnitude higher than EPA's CERCLA criterion.
  - ATSDR estimate applies to subsurface soils with 1 meter of soil cover.
  - ATSDR MRL of 100 mRem/yr corresponds to a surface soil Ra<sup>226</sup> level of 17 pCi/g
- ATSDR Concludes CERCLA Criterion and State Dose Paradigm Are Protective
  - CERCLA criterion based on UMTRCA ARAR of 5 pCi/g
  - State proposed tiered approach
    - a) Less than 100 mRem/yr - no action
    - b) 100 to 500 mRem/yr - risk reduction through education
    - c) Greater than 500 mRem/yr - EPA funded response action

### **EPA/ATSDR Coordination**

- Public Communication
- Continued Strategy Development